

Appl. No. 10/709,464
Amdt. dated October 17, 2005
Reply to Office action of September 22, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (currently amended): A projector comprising:

- 5 a housing;
 an image module installed within the housing for projecting an image
 toward a screen at the front side of the projector;
 a detecting module for detecting distances from the projector to the
 front side of the indoor space the projector is to project within and
10 from the projector to the back side of the ~~projector~~ indoor space; and
 a processor connected with the detecting module for adjusting the
 luminance of the projecting image projected by the image module
 based on the distances from the projector to the front and back
 sides of the indoor space side of the projector, and from the
15 ~~projector to the back side of the projector.~~

2 (currently amended): The projector of claim 1, wherein the detecting
module comprises:

- 20 a transmitter for emitting detecting signals toward the front side of the
 projector and the back side of the projector;
 a receiver for receiving the reflected detecting signals reflected from
 the front side of the projector and the back side of the projector; and
 a decision module for determining the distances from the projector to
 the front side of the indoor space projector, and from the projector to
25 the back side of the indoor space projector ~~based on the detecting~~
 ~~signals emitted by the transmitter.~~

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3 (currently amended): The projector of claim 1, wherein the detecting module comprises:

a transmitter for emitting a beam toward the front side of the projector and the back side of the projector;

5 an image-taking module for taking analog images projected by the beams to the front side of the projector and the back side of the projector;

an analog-to-digital converter for transforming the taken analog image by the image-taking module into a digital image;

10 a comparison module for comparing gray level of each pixel of the digital image; and

a decision module for determining the distances from the projector to the front side of the indoor space projector, and from the projector to the back side of the indoor space projector, ~~based on the position of the pixel with highest gray level.~~

15

4 (original): The projector of claim 3, wherein the beam is a laser beam.

5 (currently amended): The projector of claim 2, wherein the processor
20 adjusts the luminance of the image projected by the image module based on the total distances from the projector to the front and back sides of the indoor space ~~side of the projector, and from the projector to the back side of the projector.~~

25 6 (currently amended): The projector of claim 2, wherein the transmitter further emits detecting signals toward the left and right sides of the projector, and thus the decision module determines the distances from the projector to the left and right sides of the indoor space

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~~projector~~ based on the detecting signals to be emitted to the left and right sides of the projector by the transmitter, respectively.

- 5 7 (currently amended): The projector of claim 3, wherein the transmitter further emits beams towards toward the left and right sides of the projector, the image-taking module taking analog images projected by the beams to the left and right sides of the projector, the analog-to-digital converter transforming the analog images taken by the image-taking module into a digital image, the comparison
10 module comparing a gray level of each pixel of the digital image, and the decision module determining distances from the projector to the left and right sides of the indoor space ~~projector~~ based on the position of the pixel with highest gray level.
- 15 8 (currently amended): The projector of claim 6, wherein the processor determines an ideal distance from the projector to the screen based on a shorter distance between the distances from the projector to the left and right sides of the indoor space ~~left sides of the projector, and from the projector to the right side of the projector~~, the
20 projector further comprising a display device coupled to the processor for outputting a display signal based on a difference between an actual distance from the projector to the screen and the ideal distance from the projector to the screen.
- 25 9 (currently amended): The projector of claim 8, wherein the processor determines an ideal distance from the projector to the screen based on the shorter distance between the distances from the projector to the left and right sides of the indoor space ~~side of the projector and~~

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~~from the projector to the right side of the projector, and a~~
predetermined ratio ~~to~~ of the total distances from the projector to
the front side of the indoor space ~~of the projector~~ and from the
projector to the back side of the indoor space ~~of the projector~~.

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10 (currently amended): The projector of claim 9, wherein if the shorter
distance between the distances from the projector to the left and
right sides of the indoor space ~~projector and from the projector to~~
~~the right side of the projector~~ is longer than or equal to the
10 predetermined ratio ~~to~~ of the total distances from the projector to
the front side of the indoor space ~~projector~~ and from the projector to
the back side of the ~~projector~~ indoor space, the luminance of the
image projected by the image module is adjusted based on the total
distances from the projector to the front and back sides of the
15 indoor space ~~side of the projector and from the projector to the back~~
~~side of the projector~~; if the shorter distance between the distances
from the projector to the left and right sides of the indoor space ~~side~~
~~of the projector and from the projector to the right side of the~~
~~projector~~ is shorter than the predetermined ratio ~~to~~ of the total
20 distances from the projector to the front and back sides of the
indoor space ~~side of the projector and from the projector to the back~~
~~side of the projector~~, the image projected by the image module is
adjusted based on the shorter distance between the distances from
the projector to the left and right sides of the indoor space ~~side of~~
25 ~~the projector and from the projector to the right side of the~~
~~projector~~.

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11 (original): The projector of claim 1, wherein the detecting module is rotatable inside the housing for detecting distances from the projector outwards in various directions.

5 12 (currently amended): A projector comprising:

a housing;

an image module installed within the housing for projecting an image toward a screen at the front side of the projector;

10 a detecting module for detecting distances from the projector to the front, back, left, and right sides of the indoor space the projector is to project within;

15 a processor coupled with the detecting module for determining an ideal distance from the projector to the screen based on the distances from the projector to the front, back, left, and right sides of the indoor space projector; and

a display device coupled to the processor for outputting a display signal based on the ideal distance from the projector to the screen.

20 13 (currently amended): The projector of claim 12, wherein the detecting module comprises:

a transmitter for emitting detecting signals toward the front, back, left, and right sides of the projector;

a receiver for receiving the reflected detecting signals from the front, back, left, and right sides of the projector; and

25 a decision module for determining the distances from the projector to the front, back, left, and right sides of the indoor space projector based on the detecting signals emitted by the transmitter.

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14 (currently amended): The projector of claim 12, wherein the detecting module comprises:

- 5 a transmitter for emitting a beam toward the front, back, left, and right sides of the projector;
- an image-taking module for taking analog images projected by the beams to the front, back, left, and right sides of the projector;
- an analog-to-digital converter for transforming the taken analog image by the image-taking module into a digital image;
- 10 a comparison module for comparing gray level of each pixel of the digital image; and
- a decision module for determining the distances from the projector to the front, back, left, and right sides of the indoor space projector, based on the position of the pixel with highest gray level.
- 15

15 (original): The projector of claim 14, wherein the beam is a laser beam.

16 (currently amended): The projector of claim 12, wherein the processor
20 determines an ideal distance from the projector to the screen based on a shorter distance between the distances from the projector to the left and right sides of the indoor space projector ~~and from the projector to the right side of the projector.~~

25 17 (currently amended): The projector of claim 16, wherein the processor determines an ideal distance from the projector to the screen based on the shorter distance between the distances from the projector to the left and right sides of the indoor space ~~side of the projector and~~

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~~from the projector to the right side of the projector, and a~~
predetermined ratio ~~to~~ of the total distances from the projector to
the front side of the indoor space ~~projector~~ and from the projector to
the back side of the indoor space ~~projector~~.

5

18 (currently amended): The projector of claim 16, wherein the processor
adjusts the luminance of the image projected by the image module
based on the distances from the projector to the front and back sides
of the indoor space ~~side of the projector and from the projector to~~
10 ~~the back side of the projector.~~

19 (currently amended): The projector of claim 18, wherein the processor
adjusts the luminance of the image projected by the image module
based on the total distances from the projector to the front and back
15 sides of the indoor space ~~side of the projector and from the~~
~~projector to the back side of the projector.~~

20 (currently amended): The projector of claim 19, wherein if the shorter
distance between the distances from the projector to the left and
20 right sides of the indoor space ~~side of the projector and from the~~
~~projector to the right side of the projector~~ is longer than or equal to
the predetermined ratio ~~to~~ of the total distances from the projector
to the front side of the indoor space ~~projector~~ and from the projector
to the back side of the indoor space ~~projector~~, the luminance of the
25 image projected by the image module is adjusted based on the total
distances from the projector to the front and back sides of the
indoor space ~~side of the projector and from the projector to the back~~
~~side of the projector~~; if the shorter distance between the distances

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5 from the projector to the left and right sides of the indoor space side
~~of the projector and from the projector to the right side of the~~
~~projector~~ is shorter than the predetermined ratio ~~to~~ of the total
distances from the projector to the front side of the indoor space
~~projector~~ and from the projector to the back side of the indoor space
projector, the image projected by the image module is adjusted
based on the shorter distance between the distances from the
projector to the left and right sides of the indoor space side of the
~~projector and from the projector to the right side of the projector.~~

10

21 (original): The projector of claim 12, wherein the detecting module is
rotatable inside the housing for detecting distances from the
projector outwards in various directions.

15 22 (currently amended): A method for adjusting an ideal projecting distance and
projecting luminance of a projector comprising:

- (a) detecting distances from the projector to the front, back, left,
and right sides of the indoor space the projector is to project
within;
- 20 (b) comparing the shorter distance between the distances from the
projector to the left and right sides of the indoor space side of
~~the projector and from the projector to the right side of the~~
~~projector~~, and a predetermined ratio ~~to~~ of the total distances
from the projector to the front side of the indoor space
25 ~~projector~~ and from the projector to the back side of the
~~projector indoor space;~~ and
- (c) determining a projecting parameter, based on the result of step
(b).

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23 (currently amended): The method of claim 22 further comprising:

- 5 (d) controlling the operation of the projector based on the projecting parameter, wherein the projecting parameter indicates a width of an image projected by the projector, an ideal distance from the projector to the front side of the ~~projector~~ indoor space, or luminance of an image projected by the projector.

10 24 (currently amended): The method of claim 23, wherein the step (c) comprises:

- 15 (c1) determining the projecting parameter based on the total distances from the projector to the front and back sides of the indoor space ~~side of the projector and from the projector to the back side of the projector~~, if the shorter distance between the distances from the projector to the left and right sides of the indoor space ~~side of the projector and from the projector to the right side of the projector~~ is longer than or equal to the predetermined ratio ~~to~~ of the total distances from the projector to the front side of the ~~projector~~ indoor space and from the projector to the back side of the ~~projector~~ indoor space; and
- 20 (c2) determining the projecting parameter based on the shorter distance between the distances from the projector to the left and right sides of the indoor space ~~side of the projector and from the projector to the right side of the projector~~, if the shorter distance between the distances from the projector to the left and right sides of the front space ~~side of the projector and from the projector to the right side of the projector~~ is shorter than the
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predetermined ratio ~~to~~ of the total distances from the projector
to the front side of the ~~projector~~ indoor space and from the
projector to the back side of the ~~projector~~ indoor space.

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